AMENDMENTS TO THE CLAIMS

Please amend Claims 32, 48, 53, and 59 as follows, without prejudice or disclaimer to continued examination on the merits:

1-31. (Cancelled)

32. (Currently Amended) A method for aggregating a plurality of physical lines connecting adjacent nodes within a network comprising a plurality of nodes, the method comprising:

determining line status information for at least two of said plurality of physical lines connecting adjacent first and second nodes, where said line status information includes information regarding available data transmission bandwidth for transferring data between said adjacent first and said second nodes;

associating at least a first and second of said plurality of physical lines connecting said first and second nodes with one another to create a first aggregated link;

determining aggregate status information for said first aggregated link; and

broadcasting aggregate status information for said first aggregated link to at least one adjacent node and one non-adjacent node[[s]], where said first aggregated link includes the maximum data transmission bandwidth available over a one of said plurality of physical lines within said first aggregated link;

wherein the network comprises an optical network; and

wherein the method is implemented as one of part of a signaling and routing protocol for the optical network, a sub-network connection client module communicating with the optical network, and combinations thereof.

33. (Previously Presented) The method of Claim 32 further including the step of using a greedy algorithm to assign traffic across said first aggregated link.

34. (Previously Presented) The method of Claim 32 wherein said first aggregate link consists solely of physical lines directly connecting the first node to the second node.

35. (Previously Presented) The method of Claim 34 wherein said first aggregate link consists solely of physical lines directly connecting the first node to the second node, and wherein there are no intermediate nodes between the first node and the second node.

36. (Previously Presented) The method of Claim 32, further comprising the step of associating at least a third of said plurality of physical lines connecting the first node to the second node with a second aggregated link containing line status information on said third physical line.

37. (Previously Presented) The method of Claim 36, wherein said physical lines only include physical lines directly between the first node and the second node and there are no intermediate nodes between the first node and the second node.

38. (Previously Presented) The method of Claim 36, wherein said second aggregate link consists of physical lines having a different class of service than said physical lines in said first aggregate link.

39. (Previously Presented) The method of Claim 32, further comprising the steps:

determining the class of service for said plurality of physical lines connecting the first node to the second node by said status information;

prior to associating physical lines for said first aggregated link, selecting said first and second of said plurality of physical lines to be associated with each other in said first aggregate link from a group of said plurality of physical lines having a first class of service; and

creating a second aggregate link to include at least a third of said plurality of physical lines connecting the first node to the second node having a second class of service different from the first class of service.

40. (Previously Presented) The method of Claim 32 wherein the first node is a sub network connection network element.

41. (Previously Presented) The method of Claim 40 wherein the sub network connection network element is a sub network connection switch.

42. (Previously Presented) The method of Claim 32 comprising the additional step of transmitting the aggregate status information of the first aggregated link to said second node.

43. (Previously Presented) The method of Claim 32 wherein said aggregate status information of said first aggregated link includes a class of service based upon the line status information of each of said plurality of physical lines associated with said first aggregated link.

44. (Previously Presented) The method of Claim 32 further comprising the step of automatically associating at least two of said plurality of said physical lines with the first aggregated link.

45. (Previously Presented) The method of Claim 32 further comprising the step of reassociating one of said plurality of physical lines from the first aggregated link to a second aggregated link.

46. (Previously Presented) The method of Claim 32 further comprising the step of designating which of said plurality of physical lines associated with said first aggregated link transmits data to said second node.

47. (Previously Presented) The method of Claim 32 wherein at least one of said plurality of physical lines includes optical fiber.

48. (Currently Amended) A method for directing information across a plurality of physical lines and switches in a network, the method comprising:

storing line status information from said plurality of physical lines connecting a first switch to a second switch adjacent said first switch, the line status information including at least currently available bandwidth across each of said plurality of physical lines;

grouping at least two of said plurality of physical lines connecting the first switch and the second switch into a first aggregated link;

storing aggregate status information about the first aggregated link including the currently available bandwidth for a one of said plurality of physical lines within said first aggregated link having the highest currently available bandwidth selected from the line status information for said plurality of physical lines, where said aggregate status information is accessible by remote switches;

receiving a request to send information from said first switch to said second switch, said request including the amount of required bandwidth for the information; and

directing the information across said first aggregated link only if said stored aggregate status information includes a currently available bandwidth greater than the required bandwidth for the information;

wherein the network comprises an optical network; and

wherein the method is implemented as one of part of a signaling and routing protocol for the optical network, a sub-network connection client module communicating with the optical network, and combinations thereof.

49. (Previously Presented) The method of claim 48, further comprising:

selecting a physical line from said plurality of physical lines within the first aggregated link by determining a group of physical lines having a currently available bandwidth at least as great as the required bandwidth for the information and selecting an optimal physical line from said determined group having the least currently available bandwidth; and

directing the information across said optimal physical line.

50. (Previously Presented) The method of claim 48, further comprising:

grouping at least a further two of said plurality of physical lines connecting the first switch and the second switch into a second aggregated link;

storing second aggregate status information about the second aggregated link including the currently available bandwidth for a one of said plurality of physical lines within said second aggregated link having the highest currently available bandwidth selected from the line status information for said plurality of physical lines; and

assigning the plurality of physical lines to the first aggregated link or the second aggregated link by placing physical lines having a first class of service in the first aggregated link and placing physical lines having a second class of service in the second aggregated link.

51. (Previously Presented) The method of claim 50, further comprising:

receiving a class of service request within the request to send information between said first switch and said second switch; and

selecting an optimal aggregated link from said first aggregated link and said second aggregated link by selecting an aggregate link that matches the class of service request in said request to send information.

52. (Previously Presented) The method of claim 51, further comprising:

selecting a physical line from said plurality of physical lines within the optimal aggregated link by determining a group of physical lines having a currently available bandwidth at least as great as the required bandwidth for the information and selecting an optimal physical line from said determined group having the least currently available bandwidth; and

directing the information across said optimal physical line.

53. (Currently Amended) A method for directing information across a plurality of physical lines and switches in a network, the method comprising:

grouping at least two of said plurality of physical lines connecting a first switch and a second switch adjacent said first switch into a first aggregated link;

storing aggregate status information accessible by a third switch from said plurality of physical lines connecting a first switch to a second switch, the aggregate status information including at least currently available bandwidth across each of said plurality of physical lines;

receiving a request to send information from said first switch to said second switch, said request including the amount of required bandwidth for the information; and

directing the information across said first aggregated link only if said stored aggregate status information includes a currently available bandwidth greater than the required bandwidth for the information;

wherein the network comprises an optical network; and

wherein the method is implemented as one of part of a signaling and routing protocol for the optical network, a sub-network connection client module communicating with the optical network, and combinations thereof.

54. (Previously Presented) The method of claim 53, further comprising:

selecting a physical line from said plurality of physical lines within the first aggregated link by determining a group of physical lines having a currently available bandwidth at least as great as the required bandwidth for the information and selecting an optimal physical line from said determined group having the least currently available bandwidth; and

directing the information across said optimal physical line.

55. (Previously Presented) The method of claim 53, further comprising:

grouping at least a further two of said plurality of physical lines connecting the first switch and the second switch into a second aggregated link;

storing second aggregate status information about the second aggregated link including the currently available bandwidth for a one of said plurality of physical lines within said second aggregated link having the highest currently available bandwidth selected from the line status information for said plurality of physical lines;

assigning the plurality of physical lines to the first aggregated link or the second aggregated link by placing physical lines having a first class of service in the first

aggregated link and placing physical lines having a second class of service in the second aggregated link.

56. (Previously Presented) The method of claim 53, further comprising:

receiving a class of service request within the request to send information between said first switch and said second switch; and

selecting an optimal aggregated link from said first aggregated link and said second aggregated link by selecting an aggregate link that matches the class of service request in said request to send information.

57. (Previously Presented) The method of Claim 53 wherein said first aggregate link consists solely of physical lines directly connecting the first node to the second node.

58. (Previously Presented) The method of Claim 53 wherein said first aggregate link consists solely of physical lines directly connecting the first node to the second node, and wherein there are no intermediate nodes between the first node and the second node.

59. (Currently Amended) A method for directing information across a plurality of physical lines and switches in a network, the method comprising:

grouping at least two of said plurality of physical lines connecting a first of said switches and a second of said switches ~~switch~~ into a first aggregated link;

storing aggregate status information from said plurality of physical lines connecting a first switch to a second switch, the aggregate status information including at least currently available bandwidth across each of said plurality of physical lines and the class of service for each of said plurality of physical lines;

receiving a request to send information from said first switch to said second switch, said request including the amount of required bandwidth for the information and the minimum class of service required; and

directing the information across said first aggregated link only if said stored aggregate status information includes a currently available bandwidth greater than the required bandwidth for the information;

selecting a physical line from said plurality of physical lines within the first aggregated link by determining a group of physical lines having a currently available bandwidth at least as great as the required bandwidth for the request and having at least the minimum class of service required by the request; and

selecting an optimal physical line from said determined group having the least currently available bandwidth; and

directing the information across said optimal physical line;

wherein the network comprises an optical network; and

wherein the method is implemented as one of part of a signaling and routing protocol for the optical network, a sub-network connection client module communicating with the optical network, and combinations thereof.